

B1
cont'd

.. a film sputtered from a metal cathode target in an atmosphere comprising inert gas and reactive gas, the metal in the metal cathode target having a reactive gas switch point, wherein the concentration of the reactive gas during sputtering is below the reactive gas switch point such that the metal target is sputtered in a metallic mode to deposit a metal film having an amorphous structure defined as an amorphous metal film; and

a metal oxide film over the amorphous metal film.

B2

26. (amended) The product in accordance with claim 25, wherein the metal film has a thickness ranging from 200 Å to 700Å.

B3

39. (Amended) The product in accordance with claim 38, wherein the metal oxide film deposited over the metal film has a thickness ranging from 40Å to 120Å.

B4

40. (Amended) The product in accordance with claim 38, wherein the substrate is glass, the metal in each film is titanium, the density of the metal oxide film deposited over the metal film is 4 grams per cubic centimeter and the refractive index of the metal oxide film is 2.5

44. Product in accordance with Claim 21, wherein the metal oxide film is comprised of the same metal as the underlying amorphous metal layer.

B5

45. Product in accordance with Claim 21, wherein the metal oxide film is comprised of reactively sputtered amorphous metal oxide to increase the thermal stability of the amorphous metal film.

46. Product in accordance with Claim 21, wherein the metal oxide film has a thickness of 40 to 120 Angstroms.

47. Product in accordance with Claim 21, wherein the amorphous metal layer is harder and less dense than a crystalline metal film sputtered in pure argon and the lower density enhances the rate of oxidation so that the amorphous metal film may be thoroughly oxidized at lower temperatures or in shorter times than required for oxidation of crystalline metal film.

48. A coated product comprising:

a substrate; and

a metal oxide film from oxidation of an essentially amorphous metal film sputtered from a metal cathode target in an atmosphere comprising inert gas and reactive gas, the metal in the metal cathode target having a reactive gas switch point, wherein the concentration of the reactive gas during sputtering is below the reactive gas switch point such that the metal target is sputtered in a metallic mode to deposit a metal film having an amorphous structure.

49. Product in accordance with Claim 47, wherein oxidation is by thermal oxidation.

50. Product in accordance with Claim 47, wherein the metal oxide is comprised of crystalline metal oxide.

51. A coated product comprising:

a substrate; and

a metal oxide film comprised of crystalline metal oxide from oxidation of an essentially amorphous metal film sputtered from a metal cathode target in an atmosphere comprising inert gas and reactive gas, the metal in the metal cathode target having a reactive gas switch point, wherein the concentration of the reactive gas during sputtering is below the reactive gas switch point such that the metal target is sputtered in a metallic mode to deposit a metal film having an amorphous structure; and

B-2
C-12
a metal oxide film over the crystalline metal oxide film,
where the metal oxide film is deposited by reactive sputtering
of amorphous metal oxide over the amorphous metal film.

52. The coated product of Claim 50, wherein the
crystallized metal oxide film is titanium oxide film with a
crystalline structure having a density greater than 3.4 g/cm^3 .
